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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,484	09/28/2001	Bruce M. Radl	13076-002001	6457

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FISH & RICHARDSON PC
225 FRANKLIN ST
BOSTON, MA 02110

EXAMINER

ROSENDALE, MATTHEW L

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,484

Applicant(s)

RADL, BRUCE M.

Examiner

Matthew L Rosendale

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

Drawings filed are acceptable for examination purposes. However, formal drawings will be required upon allowance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Image Apparatus With Spectrally Dispersive Element For Aliasing Reducing.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 – 6, 8, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Langworthy.

Referring to claim 1, Langworthy discloses an electro-optical apparatus in figure 13 comprising a lens 10, a CCD image sensor 20 having a pattern of color sensitive pixels, and a

spectrally dispersive element comprising dichroic mirrors 72, 74, 76, and 78 between the lens 10 and CCD 20 (Col. 6, Lines 6 – 34).

2. Referring to claim 2, Langworthy discloses a Bayer filter pattern as shown in figure 14.
3. Referring to claim 3, Langworthy discloses an alternative embodiment where the color filter pattern is a tri-stripe shown in figures 7 and 8.
4. Referring to claim 4, Langworthy discloses color-sensitive pixels arranged in continuous groups having a red pixel and a blue pixel as shown in figure 14. The spectrally dispersive element 72, 74, 76, and 78, and the lens 10 shown in figure 13 are configured to focus a line image of an optical point by optically shifting object light upon a line of a group with the red end of the line within the red pixel and the blue end of the line within the blue pixel (Col. 6, Lines 6 – 34).
5. Referring to claim 5, Langworthy discloses a Bayer pattern shown in figure 14 having continuous 2x2 pixel groups having a red pixel adjacent to a first and second green pixels adjacent to a blue pixel.
6. Referring to claim 6, Langworthy discloses a spectrally dispersive element comprising dichroic mirrors arranged so that red and blue images are optically shifted to coincide geometrically at a point on the CCD image sensor (Col. 6, Lines 6 – 34).

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7. Referring to claim 8, Langworthy discloses a method of optical processing by focusing an image upon a CCD with a spectrally dispersive element between the lens 10 and array 20 shown in figure 13 (Col. 6, Lines 6 – 34).

8. Referring to claim 9, Langworthy discloses a method of optically shifting red and blue images to coincide geometrically at on the sensor array as shown in figure 13 (Col. 6, Lines 6 – 34).

Claim Objections

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to claim 7, the prior art fails to teach or suggest a spectrally dispersive element arranged to focus light in the center of a group of pixels having a red pixel, blue pixel, and first and second green pixels thereby creating a new green pixel by averaging the first and second green pixels to establish red, green, and blue color information center on the pint located substantially where the red, blue, and first and second green pixels meet.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Sato discloses an image capture system in figures 2 and 3 comprising a lens 11, a CCD 12 having a Bayer filter pattern, and a dispersive element comprising a set of optical lowpass filters 1 – 3 used to optically shift red, blue, and green images to correspond with their respective color filters in the Bayer pattern thereby reducing spurious signals of aliasing and false color.

Hasegawa discloses an image capture system in figure 6 comprising a lens not shown, a CCD 34 having a tri-stripe filter pattern, and a dispersive element comprising a prism 30 used to optically shift red, blue, and green images to correspond with their respective color filters

Farn discloses an optical dispersive element 90 in figure 9 for dispersing a visible light spectrum into primary color bands and directing each color band into a specific pixilated cell of a passive display.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew L Rosendale whose telephone number is (703) 305-4909. The examiner can normally be reached on Monday - Thursday 8: 00am-6: 00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.


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MLR

June 12, 2003


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600